Summary of Features for Components with Multiple Versions

Some of the hydrologic simulation components in IWFM have multiple versions that offer different simulation capabilities. To aid the user in choosing the right component version, below is a list of these component versions and a summary of the simulation capabilities they offer.

Version	Capabilities
Root Zone Component	
4.0	• Simulation of non-ponded and ponded (rice and managed refuges) crops, urban lands, native and riparian vegetation at each element • Simulation of generic moisture (seepage from extra source of water, fog, etc.) • Ability to deliver water to an element, group of elements or a subregion to meet water demand • Ability to compute physical crop water demand dynamically based on crop, irrigation management, soil and atmospheric conditions or to pre-specify water demand to represent contractual demand
4.01	• All features listed for version 4.0 above • Optional Z-Budget output for root zone as well as land and water use budgets for zone budget generation
4.1	• All features listed for version 4.0 above • Simulation of riparian vegetation access to stream water to meet all or part of their evapotranspirative water demand • Simulation of root water uptake from groundwater that meets part or all of the plant evapotranspirative demand
4.11	• All features listed for version 4.1 above • Optional Z-Budget output for root zone as well as land and water use budgets for zone budget generation
5.0	• Simulation for agricultural water demand, root zone and land surface flow processes for an average, representative crop • Agricultural and urban water demand simulated at subregion level • Water supply (diversions and pumping) are delivered to subregions to meet subregion-level demands • Ability to compute physical crop water demand dynamically based on crop, irrigation management, soil and atmospheric conditions or to pre-specify water demand to represent contractual demand

Version	Capabilities
Stream Component	
4.0	• Instantaneous routing (storage is not tracked) of stream flows • Flow - stage relationship is specified using a rating table • Wetted perimeter at each stream node is constant and does not change with respect to stream stage
4.1	• Instantaneous routing of stream flow (same as version 4.0) • Flow -stage relationship is specified as a rating table (same as version 4.0) • Simulation of wetted perimeter as a function of stage; wetted perimeter-stage relationship is specified using a rating table • Ability to simulate flow over flood plains through proper specification of wetted perimeter-stage rating table
4.2	• Instantaneous routing of stream flow (same as version 4.0) • Flow -stage relationship is specified as a rating table (same as version 4.0) • Wetted perimeter at each stream node is constant and does not change with respect to stream stage (same as version 4.0) • More than one groundwater node can be associated with a single stream node and the stream-aquifer interaction can be calculated between that stream node and the corresponding groundwater nodes
5.0	• Kinematic wave routing to simulate stream flows and to track storage change in the stream channel • Simulation of flow in rectangular, triangular and trapezoidal channels • Flow-stage relationship is represented by the Manning's equation • Wetted perimeter is calculated as a function of stage and channel geometry
Lake Component	
4.0	• Lake storage is computed as a function of precipitation, evaporation, lake-aquifer interaction, streams flowing into the lake, diversions and bypasses into the lake, surface runoff into the lake and lake outflow • Lake outflow is calculated as the amount of storage that is above a maximum lake elevation
5.0	• Lake storage calculation is the same as in version 4.0 • Lake outflow is calculated based on a rating table describing the relationship between the lake elevation and lake outflow; the last elevation entry in the rating table is assumed to be the maximum lake elevation